

Client Attachment in a Randomized Clinical Trial of Psychoanalytic and Cognitive-Behavioral Psychotherapy for Bulimia Nervosa: Outcome Moderation and Change

Sarah Ingrid Franksdatter Daniel, Stig Poulsen, and Susanne Lunn
University of Copenhagen

In the context of a randomized clinical trial of psychoanalytic psychotherapy (PPT) versus cognitive behavior therapy (CBT) for bulimia nervosa (BN), this study performed secondary analyses of (a) the relation between attachment and pretreatment symptom levels, (b) whether client pretreatment attachment moderated treatment outcome, (c) whether change in client attachment was associated with symptomatic change, and (d) whether client attachment changed differently in the 2 treatments. Sixty-nine women and 1 man of a mean age of 25.8 years diagnosed with BN were randomly assigned to either 2 years of weekly PPT or 5 months of CBT. Assessments at intake, after 5 months, and after 2 years included the Eating Disorder Examination to assess eating disorder symptoms, the Adult Attachment Interview to assess client attachment, and the Symptom Checklist 90-R to assess general psychiatric distress. Repeated measures were analyzed using multilevel analysis. Higher scores on attachment insecurity and attachment preoccupation were associated with more frequent bingeing pretreatment. Pretreatment attachment did not predict treatment outcome. In PPT, but not in CBT, reduction of bingeing was associated with an increase in attachment security. The 2 treatment types were not associated with significantly different patterns of attachment-related change. Degree and type of attachment insecurity is related to the frequency of bingeing in BN. Increase in attachment security may be a treatment-specific mechanism of change in PPT for BN.

Keywords: attachment, eating disorders, psychoanalytic psychotherapy, cognitive behavior therapy, treatment outcome

Attachment theory focuses on the evolutionary importance and developmental consequences of the quality of caregiving relationships. Since the identification of distinct attachment patterns in parent–child dyads, a steadily growing research literature has elaborated on the concept of attachment patterns and their correlates in children as well as adults (Mikulincer & Shaver, 2007; Thompson, 2008). Recently, attachment theory has become influential in clinical psychology, including the fields of adult psychopathology and psychotherapy (Obegi & Berant, 2009). Research has focused on three main issues: (a) the relation between psychopathology and attachment, (b) attachment patterns as predictors of treatment process and outcome, and (c) change of attachment patterns through clinical intervention. The present study addresses each of these issues in the context of a randomized clinical trial of psychoanalytical psychotherapy (PPT) versus cognitive behavior therapy (CBT) for bulimia nervosa ($N = 70$), in which client

attachment was assessed with the Adult Attachment Interview (AAI; Main, Hesse, & Goldwyn, 2008) at three time points.

The AAI yields an assessment of “state of mind with respect to attachment” based on the way in which a person describes the relationship to childhood caregivers (Hesse, 2008). Traditionally, attachment states of mind are discussed in terms of three primary categories. A *secure* state of mind is characterized by interpersonal openness, trust, and valuing of close relationships. Feelings are generally acknowledged and can be regulated adaptively. An insecure *dismissing* state of mind is associated with interpersonal distancing and a tendency to deny or downplay vulnerability and negative emotions to keep attachment needs at bay. An insecure *preoccupied* state of mind is characterized by interpersonal enmeshment and a tendency to become absorbed in dysregulated negative emotions interfering with the ability to reflect constructively upon relationships (Dykas & Cassidy, 2011; Hesse, 2008; Main et al., 2008). Thus, whereas security implies constructive emotion regulation, the two primary insecure attachment states of mind are associated with less optimal ways of handling emotion by either *deactivating* the attachment system, suppressing vulnerable feelings, or by *hyperactivating* the attachment system, amplifying feelings of vulnerability to elicit others’ support (Kobak, Cole, Ferenz-Gillies, Fleming, & Gamble, 1993).

Attachment and Eating Disorders

Attachment theory argues that difficulties in early attachment relationships may form part of the etiological background of later

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Sarah Ingrid Franksdatter Daniel, Stig Poulsen, and Susanne Lunn, Department of Psychology, University of Copenhagen.

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Correspondence concerning this article should be addressed to Sarah Ingrid Franksdatter Daniel, Department of Psychology, University of Copenhagen, 2A Oester Farimagsgade, DK-1353 Copenhagen K, Denmark. E-mail: sarah@selskabet.org

psychological problems, and an extensive literature has investigated associations between insecure attachment and psychological disorders in adulthood (Dozier, Stovall-McClough, & Albus, 2008). Although eating disorders (EDs) are generally acknowledged to stem from multiple sources, including biological factors and sociocultural influences, clinical literature has emphasized the importance of attachment-related problems (Bruch, 1985; Zachrisson & Skårderud, 2010). A substantial body of research has focused on the relation between EDs and difficulties in mentalization, that is, the ability to perceive and reason about the subjective states of self and others, which has its roots in attachment relationships (Kuipers & Bekker, 2012). Although mentalization does not appear to be poor in all cases of EDs (Pedersen, Lunn, Katznelson, & Poulsen, 2012), there is a reason to believe that for some ED clients, eating and weight concerns are related to difficulties with mentalization and affect regulation, which ultimately stem from a personality structure marked by attachment insecurity (Skårderud & Fonagy, 2011).

Some authors have suggested that anorexia nervosa may be related to dismissing states of mind, whereas bulimia nervosa may be related to preoccupied states of mind. Although a couple of studies seem to support this idea, others do not, and small samples preclude any definite conclusions, except for a generally increased representation of insecure attachment among ED clients (Barone & Guiducci, 2009; Candelori & Ciocca, 1998; Cole-Detke & Kobak, 1996; Fonagy et al., 1996; Ramacciotti et al., 2001; Ward, Ramsay, Turnbull, Benedettini, & Treasure, 2000; Ward et al., 2001). It is important to note that most existing studies are cross-sectional. In combination with the fact that attachment patterns are not highly stable from childhood into adulthood (Pinquart, Feussner, & Ahnert, 2013), this means that conclusions about the potential etiological role of insecure attachment cannot be made based on the existing research literature.

EDs are often comorbid with other psychological problems such as anxiety, depression, personality disorders, or substance misuse, and migration between ED diagnoses is frequent (Fairburn & Harrison, 2003), which in itself makes it unlikely that specific ED diagnoses are uniquely associated with specific insecure attachment states of mind. Nevertheless, the link between attachment and emotion regulation implies that some aspects of ED symptomatology could be related to specific aspects of a person's *current* attachment state of mind. For instance, bingeing may be related to attachment preoccupation, as bingeing may represent a maladaptive attempt to self-soothe and regulate a hyperactivated attachment system (Wilkinson, Rowe, Bishop, & Brunstrom, 2010). Attachment would also be expected to affect subjectively experienced and interpersonally expressed distress, with dismissing states of mind being associated with a tendency to deny or downplay distress and preoccupied states of mind with a tendency to amplify and express distress (Pianta, Egeland, & Adam, 1996). To the extent that such relationships between attachment and ED symptoms are present, attachment-related change may also be of interest in the context of ED treatment.

Measuring Adult Attachment Patterns

In spite of a common point of departure in attachment theory, research into adult attachment is to some extent divided by the reliance on two different measurement traditions: interview measures such as the AAI (Main et al., 2008) and self-report measures

(Brennan, Clark, & Shaver, 1998). The empirical overlap between these measures is weak (Roisman, Holland, et al., 2007). Because the present investigation used the AAI, our main emphasis will be on this conceptualization of adult attachment. AAI states of mind have traditionally been discussed in categorical terms, but recently researchers have argued that AAI states of mind are more accurately understood as reflecting underlying continuous dimensions rather than distinct categories (Roisman, Fraley, & Belsky, 2007).

The underlying dimensions of the AAI have been conceptualized either as a combination of a *secure–insecure* dimension and a *deactivation–hyperactivation* dimension (Kobak et al., 1993; Waters, Treboux, Fyffe, & Crowell, 2005) or as a combination of a *dismissing* dimension and a *preoccupied* dimension (Haydon, Roisman, Marks, & Fraley, 2011) that may be considered a 45 degree rotation of the other dimensions, as illustrated by Figure 1. A person who is insecure dismissing will be in the insecure range of the *secure–insecure* dimension and in the deactivating range of the *deactivation–hyperactivation* dimension (lower right quadrant). A person who is insecure preoccupied will be in the insecure range of the *secure–insecure* dimension and in the hyperactivating range of the *deactivation–hyperactivation* dimension (lower left quadrant). A person who is secure will be in the secure range of the *secure–insecure* dimension and relatively close to the middle on *deactivation–hyperactivation* (center top part of Figure 1). However, there are no sharp borders between categories, and attachment states of mind are continuously distributed within the two-dimensional space. This also implies that attachment change need not be categorical, for instance from insecure to secure, but can involve changes in *degree* of security.

Attachment as a Moderator of Treatment Process and Outcome

Theoretically, client attachment security is expected to predict better treatment relationships and possibly better outcomes (Dan-

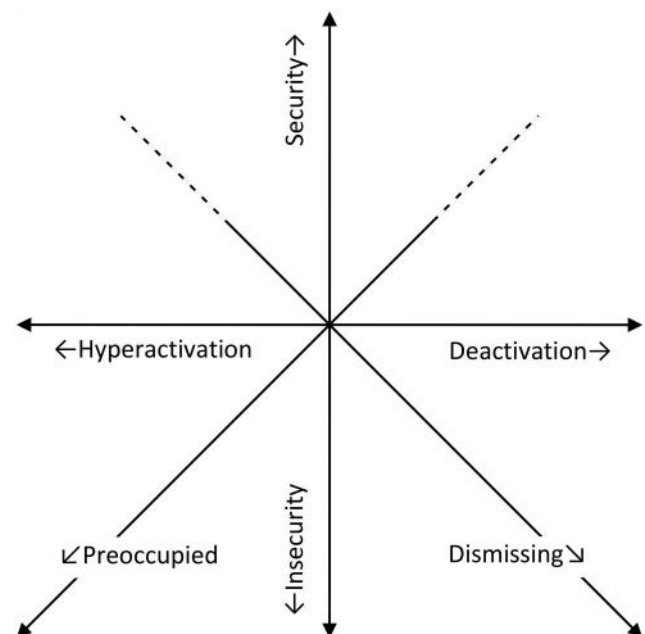


Figure 1. Dimensions underlying the primary attachment states of mind.

iel, 2006). Although meta-analyses indicate that this is in fact the case for self-reported attachment security (Diener & Monroe, 2011; Levy, Ellison, Scott, & Bernecker, 2011), similar research utilizing the AAI is sparse both in general and in an ED context. Indeed, Tasca and Balfour (2014) stated that the “effect of attachment states of mind as assessed by the AAI on treatment processes and outcomes in EDs remains an important and largely untapped area of research.”

Recently, observational data from the trial on which the present study is based indicated that higher attachment security predicted better treatment alliances in the treatment of bulimia nervosa (BN; Folke, Daniel, Poulsen, & Lunn, 2015). Other studies of diverse client populations in different kinds of treatment have generally found secure attachment states of mind to be associated with more engagement and compliance in treatment, especially as compared with dismissing states of mind (Dozier, 1990; Korfmacher, Adam, Ogawa, & Egeland, 1997; MaBeth, Gumley, Schwannauer, & Fisher, 2011; Zegers, Schuengel, van Ijzendoorn, & Janssens, 2006).

The more constructive treatment process with more secure clients could conceivably lead to better treatment outcome as well. The only published study to use the AAI as a predictor of psychotherapy outcome was conducted by Fonagy et al. (1996). In a mixed sample of psychiatric inpatients that also included ED patients, patients with dismissing states of mind improved more than preoccupied or secure patients (of which there were few). The treatment was a combination of individual and group psychoanalytic therapy in a therapeutic community setting, and Fonagy and colleagues suggest that the greater improvement observed in dismissing patients could be due to more “room for improvement” in terms of insight into patterns and dynamics for the dismissing clients. Thus, this effect could be specific to the psychoanalytic treatment studied; that is, client attachment patterns might differentially moderate outcome in different kinds of psychotherapy.

Relatedly, a frequent discussion in the literature is about the potential match between specific *kinds* of attachment insecurity and specific therapeutic interventions (Tasca & Balfour, 2014). Dismissing clients may prefer more solution-oriented interventions with limited focus on exploring relationships or accessing emotions, whereas preoccupied clients may prefer interventions that focus more on relational factors and emotional engagement with the therapist—what could be considered interventions “in style” with the particular client attachment insecurity (Daniel, 2006). In line with this, Bakermans-Kranenburg, Juffer, and van Ijzendoorn (1998) found that dismissing clients benefited more from a parent–infant intervention when they received only video feedback, whereas preoccupied clients benefited more when this was coupled with group discussions of early attachment experiences.

On the other hand, it may also be the case that better outcomes are achieved with therapies that counteract the insecure tendencies of the clients by intervening “out of style,” for instance by encouraging dismissing clients to explore relationships and emotions, as the Fonagy et al. (1996) study would seem to suggest. Additional support for the potential benefits of intervening “out of style” can be found in research on the interplay between client and therapist attachment. Tyrrell, Dozier, Teague, and Fallot (1999) found that psychiatric outpatients had better outcomes when they worked with case managers with opposite tendencies on the deactivation–hyperactivation dimension, which could be because these case

managers successfully counteracted the specific kind of attachment insecurity of the patient.

Overall, although empirical support for more constructive treatment process with secure clients is considerable, findings regarding attachment states of mind as predictors or moderators of treatment outcome are few and mixed with a definite need for more research before any clear conclusions can be drawn.

Attachment as an Outcome Variable

The concept of attachment insecurity overlaps considerably with the focus of intervention in a range of therapy modalities, and the AAI has been suggested as a relevant outcome measure in treatments aiming for changes in a person’s interpersonal function and representational models of self and others (Steele, Steele, & Murphy, 2009). Few studies have used the AAI pre and post treatment in larger samples. In a sample of 35 psychiatric inpatients in psychoanalytically oriented treatment who were all insecure at intake, 40% were secure on discharge (Fonagy et al., 1995). However, they constituted a subsample of 82 patients interviewed with the AAI before treatment, and posttreatment data for the whole sample are not available. In a sample of 18 women treated for PTSD related to childhood abuse, there was a significant reduction in the number of women categorized as unresolved (an additional category of attachment insecurity which can be assigned in combination with the primary categories; Stovall-McClough & Cloitre, 2003). This was a subsample of 52 women included in a randomized clinical trial, and prepost AAI data have not been published for the whole sample. Finally, in a randomized clinical trial of treatment for borderline personality disorder ($N = 90$), Levy et al. (2006) found that transference-focused therapy was associated with significant increases in the proportion of clients classified as secure compared with dialectical behavior therapy and supportive therapy.

Although changes in self-reported attachment have been reported in a range of therapy types (Taylor, Rietzschel, Danquah, & Berry, 2015), the few studies to demonstrate increased AAI security seem to link this mainly to psychodynamic treatment modalities. Notably, in the study by Levy et al. (2006) change on the AAI was only found in the psychodynamic treatment condition and not in dialectical behavior therapy, which performed equally well in reducing borderline symptoms (Clarkin, Levy, Lenzenweger, & Kernberg, 2007).

Important to the investigation of attachment change following psychotherapy is whether such change is associated with symptomatic relief or other changes in client functioning. Although attachment insecurity can be a target of therapeutic intervention in itself, reduction of attachment insecurity may also be a *mechanism of change* in the treatment of disorders that are associated with attachment difficulties, such as may be the case for EDs. Thus, one possible route through which ED symptoms may be alleviated might be through an increase in client attachment security and associated capacities for mentalization and affect regulation, which is essentially what is strived for in most psychodynamically oriented treatments for EDs (Lunn & Poulsen, 2012).

The Present Study

The Copenhagen Bulimia Trial is a randomized trial ($N = 70$) comparing five months of CBT to two years of PPT for BN. The

primary outcome analyses showed that both treatments led to improvement in BN symptoms and more general measures of pathology and distress, but CBT was more effective than PPT in reducing bingeing and purging, and reduced general pathology and distress faster than PPT (Poulsen et al., 2014). Apart from the overall comparison of the effectiveness of the two treatment forms, the Bulimia Trial was also designed to investigate (a) the relationship between client attachment and BN pathology, (b) client attachment as a moderator of treatment outcome, (c) whether attachment-related change was associated with treatment outcome, and (d) the relative efficacy of PPT versus CBT in increasing client attachment security. For this purpose, client attachment was assessed with the AAI at intake, after five months, and after two years. AAI data were treated as dimensional.

Based on theory and previous research (Pianta et al., 1996; Wilkinson et al., 2010), we hypothesized more preoccupied attachment states of mind to be related to higher levels of BN symptoms and general psychological distress. Due to the relation between attachment security and collaborative treatment process, we hypothesized higher pretreatment attachment security to predict better outcomes overall. In line with the discussions regarding potential match between particular attachment patterns and particular kinds of treatment, we also wanted to investigate whether client attachment moderated treatment outcome differently in CBT and PPT, that is, whether client intake scores on the two attachment dimensions interacted with treatment type in predicting outcome. CBT may be considered more “in style” with dismissing attachment and PPT more “in style” with preoccupied attachment, but because an argument could be made for both “in style” and “out of style” interventions, we had no specific hypotheses on this matter.

Because attachment-related change may serve as a mechanism of action in psychodynamic treatment, we hypothesized that in PPT, better treatment outcomes would be related to increases in attachment security, whereas this would not be the case in CBT, which we expected to work through different mechanisms. Finally, because CBT is relatively short and focuses exclusively on BN symptoms, whereas PPT is a longer-term treatment aiming to achieve symptom-relief through a more general change in emotional and relational functioning, we hypothesized that PPT would be associated with a higher increase in attachment security compared with CBT.

Method

Overall Trial Design

The Bulimia Trial was conducted in a university outpatient clinic. Clients were recruited through advertisements and referrals from local clinics. The trial used a randomized block design, stratifying for need for ongoing psychopharmacological treatment and diagnosis of a personality disorder. Inclusion criteria were being at least 18 years old, being available for the duration of PPT (two years), and meeting *DSM-IV* criteria for BN. Exclusion criteria were severe physical and psychiatric conditions that would interfere with treatment (e.g., psychosis), pregnancy, other current psychotherapy, and difficulty speaking or understanding Danish. Clients already receiving psychopharmacological treatment as well as clients meeting ICD10 criteria for moderate or severe depression who were otherwise eligible for the trial were referred to a

psychiatrist for consultation on medication. When a stable dose of medication was reached, assessment was continued. Written informed consent was obtained from all clients, and the study was presented to the Research Ethics Committee for the Capital Region of Denmark who decided that it did not require ethical approval.

A telephone-based screening was followed by a detailed assessment interview with clients who appeared eligible. The detailed assessment interview included the Present State Examination to evaluate general psychopathology (The SCAN Advisory Group, 1994). Out of 120 clients assessed for eligibility, 36 clients did not meet inclusion criteria, 10 clients met exclusion criteria, and 4 clients declined participation. The majority of noneligible clients failed to meet diagnostic criteria in terms of frequency of bingeing and purging episodes. Eligible clients who gave written informed consent underwent the pretreatment baseline assessment, and non-eligible clients were referred for alternative treatment.

The diagnosis of BN was based on the Eating Disorder Examination (EDE; Fairburn & Cooper, 1993). After the initial EDE, clients filled out a booklet of self-report instruments, assessing various aspects of personality and psychopathology. Subsequently, each client participated in the AAI and the Structured Clinical Interview for *DSM-IV* Personality Disorders (SCID-II; First, Gibbon, Spitzer, Williams, & Benjamin, 1997). The trial included 70 clients; 34 clients were randomly selected for PPT and 36 for CBT. The EDE, the AAI, and all self-report measures were administered again at five months (corresponding to the end of CBT) and at two years (corresponding to the end of PPT). Twenty-four (70.6%) clients completed two years of PPT and 28 (77.8%) clients completed five months of CBT.

Clients and Therapists

The trial included 69 women and one man, all of Scandinavian origin, with a mean age of 25.8 ± 4.9 years. They had experienced ED symptoms for a mean of 12.3 ± 6.2 years, and 41 (58.6%) had received previous treatment for an ED. Forty-seven clients (68.1%) were employed, 37 (53.6%) were students, and nine clients (13.0%) were either unemployed or on leave. Twenty-six (37.1%) fulfilled criteria for one or more personality disorders (PD) as assessed with the SCID-II, the most common being obsessive-compulsive PD ($N = 11$, 15.7%), avoidant PD ($N = 10$, 14.3%), and borderline PD ($N = 7$, 10.0%).

One male and two female clinical psychologists and one female psychiatrist provided CBT. On average, the therapists had eight years of experience. All therapists had completed a 1-year training program in cognitive behavior therapy, and all had participated in an initial 2-day training workshop in CBT for bulimia given by Christopher Fairburn, who devised the treatment. Christopher Fairburn supervised the therapists biweekly via videoconferencing.

Six female and two male clinical psychologists provided PPT. On average, the therapists had 17 years of experience. One had a full psychoanalytic training, five had completed a 3-year training program in psychoanalytic psychotherapy, one had completed a 2-year training program in psychodynamic psychotherapy for psychosis, and one had completed a 3-year training program in group analytic psychotherapy. All were supervised biweekly by the second and third authors who devised the treatment.

Treatments

CBT for BN was developed by Fairburn, Cooper, Shafran, and Wilson (2008). It is a highly structured therapy with predefined sequential treatment phases. The aim of CBT for BN is to break the vicious cycle of dieting and bingeing by establishing a regular eating pattern and correcting the cognitive distortions related to the disorder. The study used the focused form of the “enhanced” version of CBT for BN, which focuses exclusively on modifying the client’s eating disorder psychopathology. The treatment comprises 21 sessions, which are twice-weekly for the first four weeks, weekly for the next 10 weeks, and every two weeks over the final six weeks. The treatment consists of three phases: a first phase emphasizing psychoeducation, normalization of eating patterns, and symptom self-monitoring; a second phase focusing on eliminating dieting, reducing shape checking and avoidance behaviors, and modifying concerns about shape and weight; and a final phase focusing on maintaining progress and minimizing relapse risk.

PPT for BN (Lunn & Poulsen, 2012) is a nondirective therapy consisting of weekly sessions for two years. It is based on a psychoanalytic understanding of the BN symptoms, which are thought to be rooted in difficulties in affect awareness and problems in regulating impulse and affect. Therapists allow clients to direct the choice of topics, and their responses aim at helping clients to acknowledge and reflect on their inner world of experience. Therapists pay special attention to the interpersonal context of the BN symptoms and to transference–countertransference dynamics in the therapeutic relationship. The bulimic symptoms are not necessarily discussed in every session, but the therapist assists the client in understanding possible connections between eating patterns and affective states. The treatment consists of three phases: an initial phase focused on establishing the therapeutic frame and alliance and addressing the bulimic symptoms, a working phase where additional attention is directed toward the transference relationship, and a termination phase.

Adherence to CBT was assessed using a revised version of the Cognitive Behavioral Therapy Treatment Protocol Adherence Scale, a measure developed specifically for CBT for BN (Loeb et al., 2005). Adherence to PPT was measured by the Adherence Scale for Psychoanalytic Psychotherapy for Bulimia Nervosa, which was developed for the present trial (Lunn, Poulsen, Folke, & Tækker, 2011). Trained clinical psychology graduate students evaluated adherence based on audio recordings of sessions. Two therapies from each of the eight PPT therapists and four therapies from each of the four CBT therapists were randomly selected, and an early, middle, and late full session from each of these therapies was rated for adherence. In total, 96 sessions were rated. Adherence was rated on a seven-point scale, and global adherence ratings were high for both treatments (CBT: $M = 4.59$, $SD = .60$; PPT: $M = 4.98$, $SD = .73$), with particularly high scores on the items differentiating the two treatments (CBT: $M = 6.64$, $SD = .78$; PPT: $M = 6.45$, $SD = .64$), indicating that both treatments were implemented well and were distinct from each other.

Measures

Adult Attachment Interview. The AAI is a semistructured interview with 20 questions (Main et al., 2008). The interviewee is asked about the relationship to childhood caregivers, and attachment-related topics are systematically explored. The inter-

view is audio recorded, transcribed verbatim, and rated on 16 nine-point scales. Five scales evaluate aspects of childhood experience. The other 11 scales evaluate aspects of the speaker’s “attachment state of mind.” Based on scores on the “state of mind” scales and on global characteristics, interviews are assigned to one of five major categories: *secure*, *dismissing*, *preoccupied*, *unresolved*, or *cannot classify*. Interviews classified as *unresolved* or *cannot classify* are also given a secondary classification as *secure*, *dismissing*, and/or *preoccupied*. Reliability and validity are generally good (Hesse, 2008). Coders have to complete two weeks of training and achieve at least 80% agreement with expert ratings on a subsequent reliability test.

Waters and colleagues conducted a discriminant analysis to find the combination of AAI rating scales that best distinguish between (a) the category secure versus the insecure categories, and (b) the two primary insecure categories (dismissing vs. preoccupied; Waters et al., 2005). The analyses resulted in a set of coefficient weights that can be applied to scores on the AAI rating scales to yield scores on two superordinate continuous dimensions, a *secure/insecure* dimension and a *dismissing/preoccupied* dimension, corresponding to the vertical and horizontal axes depicted in Figure 1. For the present study, we analyzed the AAI data in terms of raw scores on these two continuous scales.

In the Bulimia Trial, the AAI was administered by postgraduate psychology candidates who were trained and supervised by certified AAI coders. AAI transcripts were coded by three certified coders, who were blind to time and treatment group. Twenty-eight randomly selected AAIs were coded by two or all coders to evaluate interrater reliability. The average agreement on categorical assignment for all five categories was 83% (Cohen’s $\kappa = .74$). The interrater agreement was $ICC = .71$ for the *secure/insecure* scale and $ICC = .79$ for the *dismissing/preoccupied* scale, corresponding to good to excellent agreement.

Eating Disorder Examination. The EDE (Fairburn & Cooper, 1993) is a structured interview with 33 questions assessing *DSM-IV* diagnostic criteria for EDs. In addition to the diagnostic items, frequency of objective bingeing and purging episodes, the EDE contains four subscales (Restraint, Eating Concern, Shape Concern, and Weight Concern) measuring various aspects of the core psychopathology of EDs. The EDE Global scale is computed as the mean score on these four subscales. Good interrater reliability, internal consistency, and discriminant validity have been reported (Fairburn & Cooper, 1993). In the Bulimia Trial, all EDE interviews were video- or audiotaped and subsequently evaluated and consensus-rated by at least two trained psychologists. Coefficient alphas ranged from .64 (Weight Concern) to .82 (Shape Concern) for the subscales.

Symptom Checklist 90 Revised. Self-reported symptom distress was measured with Symptom Checklist 90 Revised (SCL-90-R; Derogatis, 1994), which consists of 90 items to be rated on a scale from 0 (*not at all*) to 4 (*very much*). The SCL-90-R was designed to cover the major symptoms of psychiatric distress. The scores were summarized with the Global Severity Index (GSI), which is the mean score of the 90 items.

Data Analytic Strategy

The data set used in the present study comprises the EDE and the AAI, completed at intake, after five months, and after two

years, as well as the intake measurement of the SCL GSI. Because of two instances of recording equipment failure, intake AAIs were only available for 68 clients, and consequently all data analyses included only these clients (33 in PPT, 35 in CBT). Among these 68 clients, there were no other missing data at intake.

To examine our first study question regarding the relationship between client attachment and BN pathology, we focused only on intake measurements. The association between attachment and symptom levels at intake was evaluated by means of general linear models for each of four dependent variables: (a) bingeing episodes in the previous 28 days, (b) purging episodes in the previous 28 days, (c) the EDE global score, and (d) the SCL GSI. The *secure/insecure* and *dismissing/preoccupied* scales were entered simultaneously as predictor variables. Because of skewed distributions, bingeing and purging episodes were square-root transformed in all analyses. Effect size was evaluated as partial eta-squared, which can be interpreted as the proportion of variance in the dependent variable explained by the predictor.

For our second and third study questions, which both relate to change of eating disorder symptoms during the course of treatment, we included data from the 5-month and 2-year measurements. We wanted to focus on clients who received a fair amount of treatment, so we included clients who completed at least half of the sessions in CBT or at least the first six months of PPT and for whom at least one postintake measurement of ED symptoms was available. At five months, EDE data were available for 62 clients (30 in PPT, 32 in CBT), and at two years for 51 clients (23 in PPT, 28 in CBT). Clients who completed treatment did not differ significantly from clients who did not complete treatment in terms of any of the study variables. We chose objective bingeing episodes during the previous 28 days as assessed by the EDE as our index of treatment outcome. Bingeing is a diagnostic criterion and core feature of the bulimic pathology, which is also highly correlated with both purging episodes, the EDE global scale, and general distress.

In spite of a labor-intensive data collection, our sample size is still small, making the statistical power for moderator analyses low. This affected our choice of statistical models, which we aimed at making as simple as possible, with a minimum of parameters, while still making use of the available data. To examine our second study question regarding client attachment as a moderator of treatment outcome, we used postintake measurements of bingeing frequency as our dependent variable. Because for some clients, more than one postintake measurement was available, we used multilevel analysis to take into account the dependence between measurements from the same client (Singer & Willett, 2003). All our models were two-level models with a random intercept for clients, with measurements comprising Level 1 and clients comprising Level 2.

We specified a Moderator model as $Y_{ij} = \gamma_{00} + \gamma_{10}(\text{Time})_{ij} + \gamma_{01}(\text{Treatment})_j + \gamma_{11}(\text{Treatment})_j \times (\text{Time})_{ij} + \gamma_{02}(\text{Bingeing, intake})_j + \gamma_{03}(\text{Secure/insecure, intake})_j + \gamma_{04}(\text{Dismissing/preoccupied, intake})_j + \gamma_{05}(\text{Treatment})_j \times (\text{Secure/insecure, intake})_j + \gamma_{06}(\text{Treatment})_j \times (\text{Dismissing/preoccupied, intake})_j + u_{0j} + \varepsilon_{ij}$. Time and Treatment were both treated as categorical variables with two possible values (five months vs. two years; PPT vs. CBT). By including the cross-level Treatment $\times$ Time interaction, our model took into account the different implications of measurement points in the two treatment conditions, estimating a mean for each measurement point in each treatment, while controlling for

pretreatment bingeing level. We examined the overall predictive value of pretreatment attachment by including intake scores on the *secure/insecure* and *dismissing/preoccupied* scales as predictors at the level of clients. The potential differential moderating effect of attachment on outcome in the two treatment forms was examined by including the interaction between treatment type and intake scores on the *secure/insecure* and *dismissing/preoccupied* scales, also as client-level predictors.

To examine our third study question regarding the association between treatment outcome and change in attachment, we expanded the Moderator model to a Change model by including the *secure/insecure* and *dismissing/preoccupied* scales centered around client intake values (i.e., change since intake) and the interaction between these and therapy type as Level 1 predictor variables. Thus, the model was specified as $Y_{ij} = \gamma_{00} + \gamma_{10}(\text{Time})_{ij} + \gamma_{20}(\text{Secure/insecure, change})_{ij} + \gamma_{30}(\text{Dismissing/preoccupied, change})_{ij} + \gamma_{01}(\text{Treatment})_j + \gamma_{11}(\text{Treatment})_j \times (\text{Time})_{ij} + \gamma_{22}(\text{Treatment})_j \times (\text{Secure/insecure, change})_{ij} + \gamma_{33}(\text{Treatment})_j \times (\text{Dismissing/preoccupied, change})_{ij} + \gamma_{02}(\text{Bingeing, intake})_j + \gamma_{03}(\text{Secure/insecure, intake})_j + \gamma_{04}(\text{Dismissing/preoccupied, intake})_j + \gamma_{05}(\text{Treatment})_j \times (\text{Secure/insecure, intake})_j + \gamma_{06}(\text{Treatment})_j \times (\text{Dismissing/preoccupied, intake})_j + u_{0j} + \varepsilon_{ij}$.

To examine overall change in attachment security in the two therapy types, we first computed simple change scores and correlation coefficients between scores at different time points in each treatment type. We then specified two-level models with random intercepts for clients using all measurements of *secure/insecure* scale as the dependent variable. Again, Time and Treatment were treated as categorical variables (two years or five months vs. intake; PPT vs. CBT). We first looked at a model with only a Time effect: $Y_{ij} = \gamma_{00} + \gamma_{10}(\text{Time})_{ij} + u_{0j} + \varepsilon_{ij}$, and subsequently at a Treatment $\times$ Time model: $Y_{ij} = \gamma_{00} + \gamma_{10}(\text{Time})_{ij} + \gamma_{01}(\text{Treatment})_j + \gamma_{11}(\text{Treatment})_j \times (\text{Time})_{ij} + u_{0j} + \varepsilon_{ij}$. For all multilevel analyses, effect size was evaluated using pseudo- R^2 for reduction in observed variance when comparing a model including the predictors of specific interest to a model not including these predictors (Singer & Willett, 2003). All statistical analyses were performed in SPSS 23.

Results

At intake, the majority of the 68 clients with codable AAIs were insecure, with 21 (30.0%) classified as secure, 21 (30.0%) as dismissing, 16 (22.9%) as preoccupied, and 10 (14.3%) as unresolved or cannot classify (Lunn, Poulsen, & Daniel, 2012). Table 1 shows descriptive statistics on study variables for these 68 clients. There were no significant differences between the groups randomized to each therapy type in terms of any of the study variables.

We hypothesized that prior to treatment, client attachment would be related to symptom levels, with more preoccupied attachment being associated with higher levels of eating disorder symptoms and general distress. Results of analyses examining the relation between attachment and aspects of psychopathology at intake are reported in Table 2. More frequent bingeing was significantly associated with higher levels of attachment insecurity and higher levels of attachment preoccupation (lower scores on the *dismissing/preoccupied* scale reflect more preoccupation). Each of the attachment scales explained 8%–9% of the variance in bingeing. Attachment did not significantly predict other aspects of client symptomatology.

Table 1
Means and Standard Deviations for Study Variables by Time and Treatment

Variables	PPT			CBT		
	Intake (<i>n</i> = 32)	5 months (<i>n</i> = 30)	24 months (<i>n</i> = 23)	Intake (<i>n</i> = 36)	5 months (<i>n</i> = 32)	24 months (<i>n</i> = 28)
Secure/insecure	−0.66 (1.42)	−0.12 (1.75)	−0.06 (1.66)	−0.31 (1.61)	−0.38 (1.93)	−0.19 (1.71)
Dismissing/preoccupied	−0.97 (1.93)	−0.63 (1.82)	−0.84 (1.91)	−0.61 (1.69)	−0.12 (1.49)	−0.02 (1.17)
Binging	34.4 (24.2)	28.0 (39.0)	10.0 (18.6)	34.3 (30.8)	7.4 (14.9)	3.4 (7.2)
Purging	44.7 (29.8)	28.9 (25.3)	14.3 (22.1)	45.8 (43.1)	12.6 (29.5)	3.6 (7.4)
EDE global	3.55 (1.09)	2.64 (1.32)	1.56 (.98)	3.96 (1.10)	2.00 (1.35)	1.68 (1.29)
SCL GSI	0.97 (.55)	0.93 (.51)	0.47 (.40)	1.19 (.58)	0.66 (.56)	0.48 (.40)

Note. PPT = Psychoanalytic psychotherapy; CBT = Cognitive behavior therapy; EDE = Eating Disorder Examination; SCL GSI = Symptom Checklist 90-R general severity index.

We hypothesized that higher intake scores on the *secure/insecure* scale would predict better treatment outcomes overall and that intake scores on the attachment scales might differentially moderate treatment outcome in the two treatments. Results of the multilevel analysis examining these questions are reported in the column “Moderator model” in Table 3. We found no significant predictive effect of the attachment scales, neither overall nor in interaction with treatment. Pseudo- R^2 for the Moderator model as compared with a model without the attachment predictors was 0.004, indicating a very small effect with less than 1% of the between-client variance explained by including the effects of intake attachment.

We further hypothesized that in PPT, change in client attachment since intake would be associated with treatment outcome, whereas this would not be the case in CBT. Detailed results of the multilevel analysis examining this question are reported in the column “Change model” in Table 3. The analysis found a significant interaction between treatment type and security change in predicting postintake binging frequency, with a stronger relationship between security change and binging frequency found in PPT than in CBT. Based on this model, a PPT client with an end-of-treatment two-point increase in security would have around nine fewer monthly binging episodes than a client with a two-point decrease in security, whereas in CBT, the corresponding difference would be less than one binging episode and in the opposite direction. Pseudo- R^2 for the Change model as compared with the Moderator model was 0.052, indicating that 5% of the within-client variance in binging episodes was explained by taking this interaction effect into account.

Within clients, the observed change on the *secure/insecure* scale ranged from −5.0 to 4.8. At five months, 16 clients showed

increases and 12 clients showed decreases of at least one *SD* (which was 1.52 for intake scores in the overall sample); at two years, 7 clients showed increases and 9 clients showed decreases of at least one *SD* since their 5-month score. In PPT, stability was highest from intake to five months, $r = .71$, $p < .001$, whereas more change was observed from five months to two years, $r = .52$, $p = .013$. In CBT, stability was particularly low from intake to five months, $r = -.03$, $p = .864$, whereas security was more stable in the posttreatment follow-up period, $r = .73$, $p < .001$. The multilevel analyses summarized in Table 4 found no evidence of a significant general change on the *secure/insecure* scale as a function of time, nor of different patterns of change in the two treatments. Pseudo- R^2 of the Time model compared with an intercept only model was 0.020, indicating that 2% of the within-client variance was explained by time of measurement. Pseudo- R^2 of the Treatment $\times$ Time model compared with the Time model was 0.011, that is, adding therapy type to the model explained only 1% of the remaining within-client variance.

Discussion

This study is the first to report results of repeated administration of the AAI in the context of ED treatment, with relevant contributions to each of the issues outlined in the introduction: (a) the relation between psychopathology and attachment, (b) attachment as a moderator of treatment outcome, and (c) change of attachment through clinical intervention.

The two primary insecure patterns were almost equally represented in the sample, making the question about whether particular attachment states of mind are associated with specific symptom profiles within BN very relevant. The only aspect of client symp-

Table 2
Client Attachment Scales as Predictors of Pretreatment Levels of ED Pathology and General Distress

Variables	Secure/insecure				Dismissing/preoccupied			
	B (<i>SE</i>)	<i>t</i>	<i>p</i>	η_p^2	B (<i>SE</i>)	<i>t</i>	<i>p</i>	η_p^2
Binging ^a	−.39 (.16)	−2.47	.016	.086	−.32 (.13)	−2.41	.019	.082
Purging ^a	−.13 (.20)	−.66	.511	.007	−.18 (.17)	−1.09	.282	.018
EDE global	.12 (.09)	1.28	.206	.024	−.01 (.08)	−.11	.915	.000
SCL GSI	−.00 (.05)	−.02	.982	.000	−.03 (.04)	−.63	.531	.006

Note. EDE = Eating Disorder Examination; SCL GSI = Symptom Checklist 90-R general severity index; η_p^2 = partial eta-squared.

^a Square root transformed.

Table 3
Multilevel Analyses of Client Attachment and Attachment Change as Predictors of Outcome in Terms of Binging Frequency

Model parameters	Moderator model		Change model	
Fixed effects, Estimate (<i>SE</i>), <i>p</i>				
Level 1 (measurement)				
Intercept	−1.67 (.70)	.021	−1.50 (.70)	.036
5 months vs. 2 years	.46 (.49)	.357	.48 (.48)	.320
PPT vs. CBT × 5 months vs. 2 years	1.79 (.73)	.018	1.87 (.70)	.011
Secure/insecure, change ^a			.10 (.17)	.577
Dismissing/preoccupied, change ^a			.07 (.23)	.769
PPT vs. CBT × Secure/insecure, change			−.57 (.27)	.041
PPT vs. CBT × Dismissing/preoccupied, change			−.39 (.31)	.209
Level 2 (client)				
Binging episodes, intake ^b	.50 (.11)	.000	.47 (.11)	.000
Secure/insecure, intake	.01 (.19)	.975	.09 (.25)	.727
Dismissing/preoccupied, intake	−.06 (.19)	.766	−.03 (.27)	.925
PPT vs. CBT	1.18 (.65)	.075	1.17 (.64)	.069
PPT vs. CBT × Secure/insecure, intake	.13 (.30)	.657	−.10 (.34)	.777
PPT vs. CBT × Dismissing/preoccupied, intake	−.00 (.25)	.992	−.23 (.32)	.473
Random effects, Estimate (<i>SE</i>), <i>p</i>				
Residual	3.51 (.71)	.000	3.21 (.66)	.000
Client intercept variance	.84 (.65)	.198	.85 (.62)	.170

Note. PPT = Psychoanalytic psychotherapy; CBT = Cognitive behavior therapy.

^a Centered within clients around intake values. ^b Square-root transformed.

toms found to be significantly associated with attachment was frequency of binging episodes. This is a core aspect of bulimic psychopathology, characterized by consumption of an unusually large amount of food while subjectively feeling a loss of control. We found that this tended to happen more frequently for clients, who were more insecure and who were characterized by preoccupied rather than dismissing attachment. This lends some support to the idea that bulimic binge-purge cycles are associated with attachment preoccupation, although it should be noted that only a third of all clients were assigned to the preoccupied category. It is also important to stress, that the attachment variables only explained a modest proportion of the variance in binging episodes, and that the cross-sectional nature of these data imply that we

cannot draw any conclusions about cause and effect in this relationship.

Contrary to expectations, more preoccupied states of mind were not related to higher self-reported distress. Thus, while the more preoccupied clients in our sample exhibited higher binging frequencies, they did not present themselves as more generally distressed. Although speculative, this may be because the maladaptive affect regulation strategy of binging and purging actually has a calming effect for the preoccupied clients. If so, achieving a reduction in binging for these clients may not necessarily be associated with a reduction in general distress as would otherwise be expected. It should also be noted that our sample was a relatively well-functioning outpatient group where serious dys-

Table 4
Multilevel Analyses of Change in Client Attachment Security as a Function of Time and Treatment Type

Model parameters	Time model		Treatment $\times$ Time model	
Fixed effects, Estimate (<i>SE</i>), <i>p</i>				
Level 1 (measurement)				
Intercept	−.58 (.21)	.007	−.42 (.29)	.148
5 months vs. intake	.30 (.24)	.205	.04 (.32)	.898
2 years vs. intake	.40 (.25)	.121	.22 (.34)	.529
PPT vs. CBT $\times$ 5 months vs. intake			.55 (.47)	.246
PPT vs. CBT $\times$ 2 years vs. intake			.38 (.51)	.455
Level 2 (client)				
PPT vs. CBT			−.32 (.42)	.443
Random effects, Estimate (<i>SE</i>), <i>p</i>				
Residual	1.70 (.23)	.000	1.68 (.23)	.000
Client intercept variance	1.04 (.31)	.001	1.04 (.30)	.001

Note. PPT = Psychoanalytic psychotherapy; CBT = Cognitive behavior therapy.

regulation and personality disturbance was relatively rare, which may contribute to this finding.

We found no evidence for the hypothesized relationship between attachment at intake and treatment outcome. The only existing study to find a predictive effect of the AAI employed a diagnostically mixed sample (Fonagy et al., 1996), making it hard to disentangle effects of attachment from effects of having different presenting problems. Relatedly, in the meta-analysis of self-reported attachment as a moderator of treatment outcome (Levy et al., 2011), it was not possible to control for initial symptom levels, which conflates prediction of end-of-treatment symptom levels with possible attachment-related differences in pretreatment symptom levels. In our sample, there was an association between attachment and binge frequency at intake, and thus it would be misleading not to take symptoms at intake into account in the moderator analysis. The absence of significant predictive effects of attachment security in our sample could be due to lack of statistical power, but estimated effect size was also small. Another possibility is that success in treatment of BN, perhaps especially in CBT, is not as contingent on attachment security as treatment of other disorders might be.

We also found no evidence for treatment-specific match effects depending on client pretreatment scores on attachment dimensions. Again, the issue might be statistical power, but it is also likely that the question of whether therapy should be “in style” or “out of style” with client attachment is phrased too simply and that the answer differs as a function of intervention focus, treatment length and timing, and other factors. Furthermore, there might conceivably be match-effects at the level of specific in-session interventions or therapist relational styles, rather than at the overall level of treatment “brand.”

Supporting the hypothesis of different mechanisms of action in the two treatment types, we found that outcome in PPT was related to change in client attachment security, although change in attachment security only explained a small amount of variance in postintake bingeing, indicating that other mechanisms are certainly in play as well. We have too few measurement points to perform more rigorous tests of this relationship, and indeed causality may run in both directions. Still, it is noteworthy that the relationship was different in CBT, which did considerably reduce bingeing. This boosts the argument that when PPT successfully reduces client bingeing, this occurs partially through attachment-related change. It will be of great importance to the further development of PPT for bulimia to carry out more detailed studies of the specific in-treatment processes associated with increases in attachment security.

Our analyses did not indicate systematic group-level change in attachment security over time, nor did we find support for our hypothesis of greater increase of attachment security in PPT compared with CBT. However, this does not reflect complete stability of security in our sample, but rather that change was less systematic and went in both directions as is evidenced by the descriptive findings. Some studies suggest that the general stability of AAI security is lower in unstable environments, during developmental transitions, and in clinical or at-risk populations (Crowell & Hauser, 2008). Previous studies of AAI change after therapy found more uniform change in the direction of security, but they did so in samples that were almost exclusively composed of clients with insecure attachment at intake, which means that change can only

take one direction (Fonagy et al., 1995; Levy et al., 2006; Stovall-McClough & Cloitre, 2003).

Our finding that many clients changed toward insecurity during the trial calls for further reflection. Many clients were “borderline” secure/insecure, making AAI coding particularly challenging, and thus some of the instability is attributable to rating error. In general, security was most unstable in the period prior to ending therapy; from five months to two years in PPT, and from intake to five months in CBT. It may be that end-of-treatment AAIs are sensitive to reactions to treatment termination, with some increases in insecurity representing “separation reactions.” Although this is interesting in itself, it does suggest caution regarding the AAI as an outcome measure, as posttreatment AAIs may conflate different kinds of change, some of which may be transient and some more enduring.

The most obvious limitation of our study is the relatively small sample size, which increases the risk of Type II error. The EDE and especially the AAI are very time-consuming research instruments, limiting the number of available data points, which unfortunately precludes more complex analyses making use of sequential information. Our results indicate the possible presence of complex interplays between client attachment, ED symptoms, and treatment processes that it would be highly relevant to investigate in studies with more frequent measurement points in order to be able to disentangle effects from each other and evaluate the direction of causal relationships.

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